

REMARKS

The Office Action dated July 5, 2005 has been received and carefully noted. The following remarks are submitted as a full and complete response thereto. Claims 1-7 are currently pending in the application. Claims 4-7 have been withdrawn from consideration. Therefore, claims 1-3 are respectfully submitted for consideration.

The Office Action rejected claims 1-3 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. The Office Action states that it is not clear which structural configurations of the heat exchanger are encompassed by the limitation “the at least one heat exchanger is configured to heat said intermediate fluid.” The above rejection is respectfully traversed for the reasons which follow.

Applicants respectfully submit that paragraphs 0019-0022 of the current specification specifically describe how the heat exchanger heats the intermediate fluid. Specifically, the specification states “an intermediate fluid, such as glycol or fresh water, is circulated by a pump 22 through the vaporizer 23 and the submerged heat exchanger 21... the submerged heat exchanger 21 enables heat transfer from the surrounding sea water to the circulated intermediate fluid without the intake or pumping of sea water into the LNGC” (Specification, paragraphs 0020-0021). Therefore, the specification clearly describes that the heat exchanger allows for the transfer of heat from the surrounding sea water to the intermediate fluid. As such, Applicants respectfully assert that the specification clearly describes how the heat exchanger is configured to heat the

intermediate fluid. Applicants respectfully request that the rejection of the claims under 35 U.S.C. §112, second paragraph, be withdrawn.

The Office Action rejected claims 1-3 under 35 U.S.C. §102(b) as being anticipated by Moss Maritime A.S. (WO 01/03793 A1, hereinafter Moss). The above rejection is respectfully traversed as the present claims recite subject matter which is neither disclosed nor suggested by Moss.

Claim 1, upon which claims 2 and 3 are dependent, is directed to an LNG carrier for transporting LNG from one location to another. The LNG carrier includes a vaporizer onboard for vaporizing the LNG to a gaseous state. At least one heat exchanger is at least partially submerged in water, and an intermediate fluid circulates between the vaporizer and the heat exchanger. At least one pump is provided for circulating the intermediate fluid. The heat exchanger is configured to heat the intermediate fluid.

As a result of the claimed configuration, a self-contained LNG carrier is provided wherein liquid natural gas can be regasified either onshore or offshore, at each location at which LNG may be delivered. As will be discussed below, Applicants respectfully submit that Moss fails to disclose or suggest the claimed invention, and therefore fails to provide the features discussed above.

Moss discloses a device for the evaporation of liquefied natural gas (LNG) on board a vessel 1. The vessel 1 includes a control and metering device 2 for receiving LNG that is pumped from a supply ship and for discharging natural gas (NG) to the consumer pipe network pipelines (Moss, page 2, lines 23-26). A line 3 extends from the

control and metering device 2 to a tank 4 in which the LNG is stored. A pipe 5 leads from tank 4 to one end of a pipe device 6 which is immersed in the sea beneath the vessel 1, and which acts as a vaporizer. A pipe 7 leads from the other end of pipe 6 to a storage tank 8 for NG. A pipe 9 leads from storage tank 8 to the control and metering device 2. The vessel 1 may be moored by means of anchor chains 11, 12 which are connected to the vessel at location 13 (Moss, page 2, lines 28-38). A tubular shell 15 may enclose the pipe 6. A propeller 16 is provided at the end of the shell 15. By operating the propeller 16, seawater is forced through the casing 15 and around the pipe 6 in a direction towards the mooring cables 11, 12. As a result, the propeller 16 provides a current of warm sea water around the pipe 6 causing evaporation of LNG (Moss, page 3, lines 1-9).

Applicants respectfully submit that Moss fails to disclose or suggest an at least partially submerged heat exchanger for heating **an intermediate fluid**, as recited in present claim 1. According to an embodiment of the claimed invention, an intermediate fluid, such as glycol or fresh water, is circulated by pump 22 through the submerged or partially submerged heat exchanger 21 and then the vaporizer 23. The heat exchanger 21 enables heat transfer from the surrounding sea water to the circulated intermediate fluid due to the temperature differential between the two. The intermediate fluid then circulates to the vaporizer 23. LNG is passed into the vaporizer 23 through line 24, where it is regasified and exits through line 25 (Specification, Paragraph 0041). As discussed above, Moss only discloses that, by operating the propeller, a current of relatively warm sea water is forced around the pipe causing the evaporation of LNG

inside. However, Moss does not disclose the use of an intermediate fluid, other than sea water or LNG, and consequently also fails to disclose a heat exchanger for heating such an intermediate fluid. Therefore, Moss fails to disclose or suggest at least this limitation of claim 1.

Similarly, Applicants respectfully submit that Moss fails to disclose or suggest an intermediate fluid circulating between the vaporizer and the heat exchanger, as recited in claim 1. Applicants respectfully assert that the sea water disclosed in Moss as heating the LNG via pipe 6 does not correspond to the intermediate fluid of the claimed invention. As discussed above, according to an embodiment of the claimed invention, the heat exchanger 21 allows the sea water to heat the circulating intermediate fluid which is then sent to the vaporizer 23.

Moss makes no mention of the use of an intermediate fluid. The only fluids discussed in Moss are sea water and LNG. Additionally, Applicants respectfully submit that the sea water cannot be considered to correspond to the intermediate fluid of the present invention. If the sea water were considered to correspond to the intermediate fluid, then there would not be any need to heat the intermediate fluid with the sea water, as they would be one and the same. The present specification provides examples of intermediate fluids as being glycol or fresh water (Specification, paragraph 0020). Therefore, according to one aspect of the present invention, the intermediate fluid is a fluid other than sea water which is used in the re-gasification process. As such,

Applicants respectfully assert that Moss fails to disclose or suggest such an intermediate fluid.

Furthermore, Applicants respectfully submit that Moss fails to disclose or suggest an LNG carrier for transporting LNG from one location to another, as recited in the present claims. According to Moss, the device or vessel 1, which serves to evaporate the natural gas, is not a vessel for transporting LNG. Moss specifically states that a ship transporting the LNG would be moored close to vessel 1, and a pipe would be connected from the ship to the control and metering device 2 (Moss, page 3, lines 13-16). The present invention, on the other hand, provides that the re-gasification process occur onboard the LNG carrier which transported the LNG (for example, claim 1 recites a vaporizer on board an LNG carrier). Therefore, Moss also fails to disclose or suggest this element of the claims.

Applicants respectfully submit that it would have been clear to a person of ordinary skill in the art that Moss fails to disclose or suggest at least one heat exchanger at least partially submerged in water and configured to heat an intermediate fluid. Similarly, Applicants submit that it would have been clear to a person of ordinary skill in the art that Moss also fails to disclose or suggest an intermediate fluid circulating between the vaporizer and the heat exchanger. Furthermore, Moss also fails to disclose or suggest an LNG carrier for transporting LNG from one location to another. For at least the reasons discussed above, Applicants respectfully request that the rejection of claim 1 be withdrawn.

Applicants note that claims 2 and 3 are dependent upon claim 1. Thus, claims 2 and 3 should be allowed for at least their dependence upon claim 1, and for the specific limitations recited therein.

Applicants respectfully submit that the cited prior art fails to disclose or suggest critical and important elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 1-3 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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